Appendix 10 - Adenovirus Fact Sheet

Be aware of these facts and contact EH&S
for specific information prior to commencing work.

The UCSD Institutional Biosafety Committee (IBC) has determined that work involving the use of Adenovirus, Adenoviral vectors, and Adeno-Associated Virus (AAV) requires Biosafety Level 2 (BSL-2) practices and procedures PLUS precautions which are detailed below (BSL-2 + Adeno).

See Chapter 3 of the UCSD Biosafety Handbook for a detailed description Biosafety Level 2 requirements.

Laboratory Practices

1. All vacuum lines must be fitted with a HEPA filter (an example is the "VacushieldJ" in-line hydrophobic filter, Product # 4402 from Gelman Sciences available at the UCSD Storehouse).
2. No work with Adenovirus is permitted on the open bench. A Biosafety Cabinet must be used for all manipulations including (but not limited to):

   Pipetting
   Harvesting infected cells for RNA
   Loading and opening containers

1. Centrifugation must be done in closed containers and using sealed rotors.

Precautions

1. Adenovirus is a pathogen of respiratory and gastrointestinal mucous and eye membranes, and does not have to be replication-competent to cause corneal and conjunctival damage. Goggles must be worn when working with the agent/vector.
2. The replication-defective virus may be complemented in vivo thereby causing the vector to become replication competent.
3. Adenovirus (unlike HIV or herpes), is quite stable. After having been extracted with ether, and/or chloroform, it can still be infective.
4. Signs and labels must be placed to indicate each area where Adenovirus is used or stored (including Biosafety cabinets, incubators, refrigerators, laboratory entrance doors, etc.)

Animal Use

1. When animals are infected with adenovirus/adenoviral vectors, an Animal BSL-2 area must be approved and used for the procedure. Concurrent approvals are needed from the Institutional Biosafety Committee (IBC) and the Animal Subjects Committee (ASC). All necropsy must be performed in a necropsy room using Animal BSL-2 + Adenovirus precautionary practices and procedures.
2. Infected animals may excrete adenovirus (especially in the first 72 hours after infection). Precautions must be taken not to create aerosols when emptying animal waste material and when washing down cages, or cleaning the room with pressure hoses. It is strongly recommended by the Institutional Biosafety Committee that the lab personnel be responsible for all animal husbandry practices during the first 72 hours following infection of the animal.
3. Special training must be given to all animal husbandry personnel on adenovirus, the hazards associated with the work, required practices and procedures and proper handling of bedding, cage washing, and all other husbandry materials associated with the experiment.
4. Arrangements must be made with Office of Animal Resources for proper disposal of animal carcasses.

Employee Exposure

1. **Eye Exposure from splash or aerosols** – Rinse a minimum of 15 minutes in eye wash or flush area with water and take patient to Thornton Hospital (if working on campus) or to UCSD Medical Center in Hillcrest (if working at the Hillcrest facility).
2. **Needlestick and/or Sharps Exposure** – Follow UCSD Post Exposure Management Protocol. Prevent inoculation.

    - Exposure Management for Hillcrest Medical Center
    - Exposure Management for Thornton Hospital

SYMPTOMATOLOGY: Acute Respiratory Illness (cold-like symptoms); pneumonia. Conjunctival infection (or red eye), corneal inflammation leading up to scarification.

Personal Protection Equipment

1. Gloves
2. Wrap around outer clothing when introducing vector into animals or performing necropsies. Labcoats are adequate for tissue culture manipulations.
3. Goggles (not to be confused with safety glasses)
4. N-95 Respirator, to be used with concentrated titres and highly aerosolizing procedures outside of the Biological Safety Cabinet (contact EH&S for further information)

Decontamination

The most effective germicides (with a minimum 15 min. contact time) are:

1% Sodium hypochlorite
2% Glutaraldehyde
5% Phenol

OR

Autoclaving for 1 hour at 121°C or 250°F (15 lbs per square inch of steam pressure)

(This is not to be performed for personnel exposure!)

Employee Right-to-Know

It is important that **all** lab personnel (even those not directly working with the virus) be informed and aware that Adenovirus is being used in the lab.

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